

(No Model.)

2 Sheets—Sheet 1.

L. W. CASE.
ELECTRIC LOCOMOTIVE.

No. 500,851.

Patented July 4, 1893.

Fig. 1.

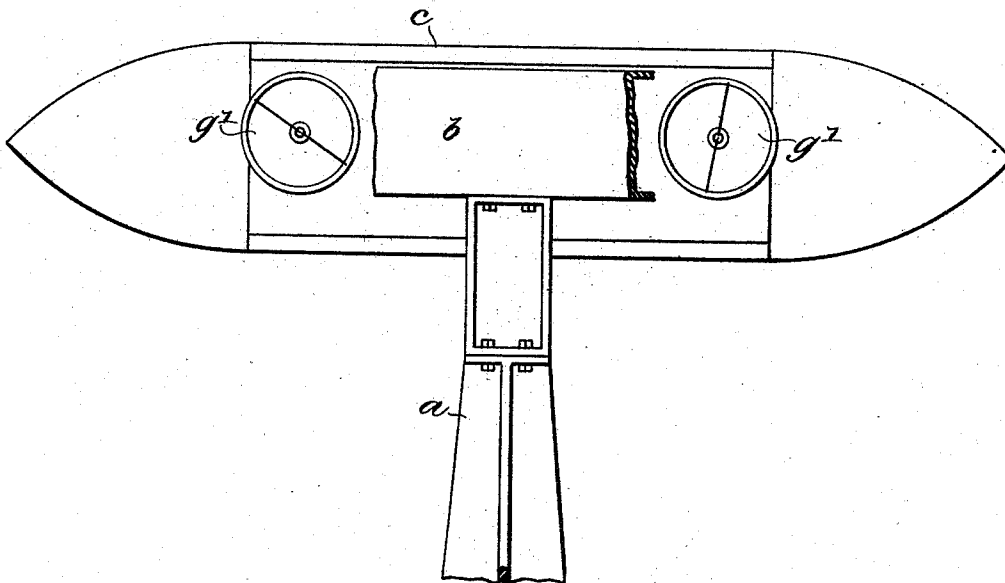


Fig. 2.

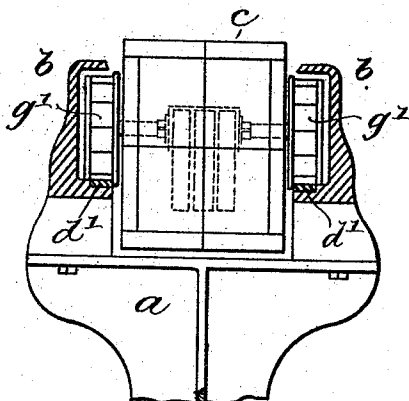
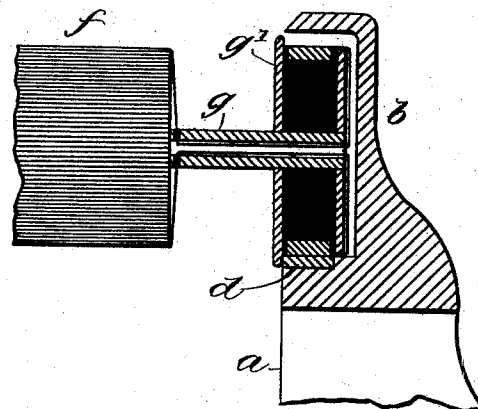


Fig. 3.



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Fig. 4.

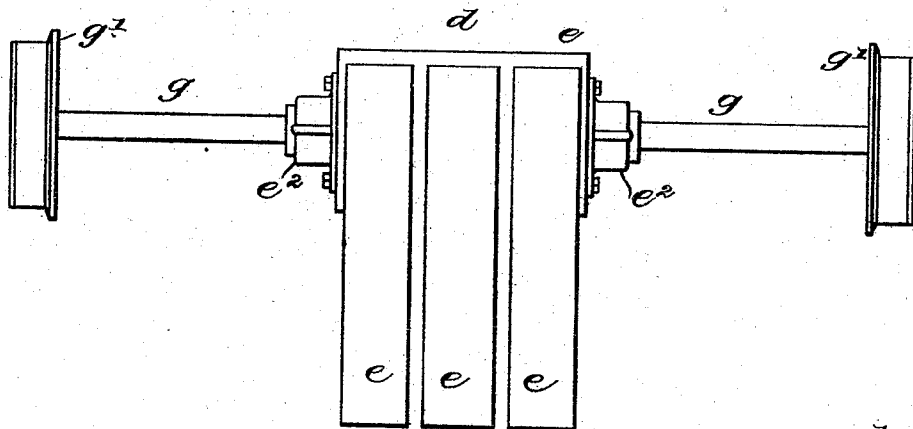


Fig. 5.

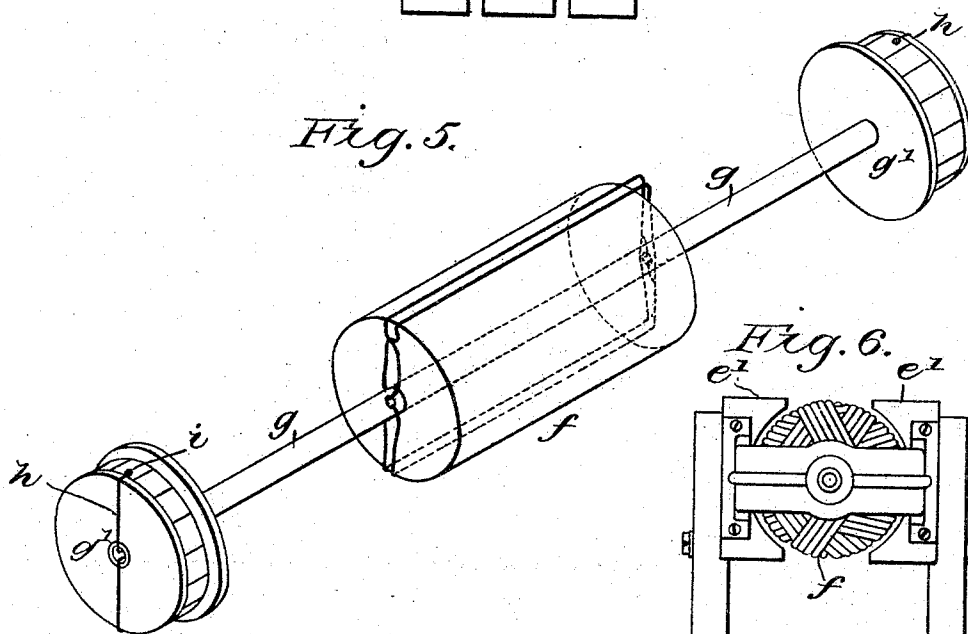
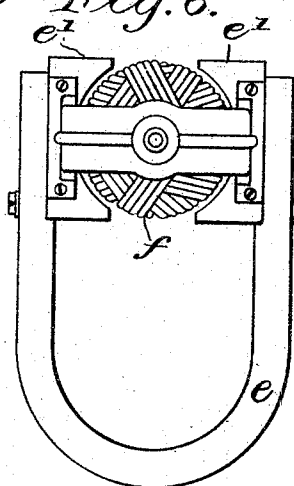


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

LAWRENCE WELLS CASE, OF HIGHLAND PARK, CONNECTICUT.

ELECTRIC LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 500,851, dated July 4, 1893.

Application filed May 9, 1891. Serial No. 392,216. (No model.)

To all whom it may concern:

Be it known that I, LAWRENCE WELLS CASE, of Highland Park, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Motors for Electric Railroads, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My invention relates to the class of devices that are adapted to be used in the propulsion of cars by electricity, and the object of my invention is to provide a motor suitable to be carried on a car of any convenient or desired shape, and in its use doing away with the necessity of the use of brushes.

My invention consists in the details of the arrangement of the several parts making up the device as a whole, and in their combination, as more particularly hereinafter described and pointed out in the claim.

Referring to the drawings:—Figure 1 is a detail side view of a car and of one standard of a track with parts broken away to show construction. Fig. 2 is a detail view in crosswise section of the track and end view of the car. Fig. 3 is a detail view on enlarged scale in crosswise section through the track and end of the armature shaft showing the arrangement of the commutators and ends of the wires. Fig. 4 is a detail view on enlarged scale of the motor. Fig. 5 is a detail perspective view on enlarged scale of the armature and shaft illustrating the method of winding. Fig. 6 is a detail side view on enlarged scale showing the armature and with the commutators removed.

In the accompanying drawings the letter *a* denotes a standard on which a rail *b* of any suitable form is supported, two such rails arranged opposite to each other forming a track upon which the car *c* is supported and arranged to move being employed. This track may be of any desired construction and may have along the tread on which the wheels of the car travel a conducting strip *d'* that is of any material having a high degree of conductivity.

The car *c* is provided with a motor *d* composed, in the form of the device herein illustrated, of a field of permanent magnets *e*

united to pole pieces *e'* made of soft iron. Between these pole pieces *e'* is supported an armature *f*, the shaft *g* of which projects through suitable boxes *e''*, and is provided on the ends with the wheels *g'* that in fact compose the commutators, while forming at the same time the wheels on which the car is supported. The armature shaft extends of course through openings on opposite sides of the body of the car, and the wheels are made up of a number of strips of material separated by insulating strips, as in any ordinary manner of building up a commutator. There are two commutators, one borne at each end of the armature shaft, and they form the driving wheels as well as the rotary supports for the car.

That portion of the shaft near the ends is made hollow for the passage of the armature terminals *h* used in winding the armature, an opening being made in the shaft to allow the wire to extend through the shaft from the body of the armature substantially as represented in Fig. 5 of the drawings. The armature is secured to the central part of the armature shaft and is made up in any one of the ordinary ways, the winding being of either the Gramme or Siemens type, with the exception of the terminals *h* which are all branched, one branch of the terminal of a coil passing through the opening in the shaft and being connected to one of the commutator bars *i*; the other branch of the same terminal passes through the other end of the shaft and is connected to the bar of the commutator which is diametrically opposite the bar of the first commutator mentioned. These commutator bars form the surface of the wheel on which the motor and car are supported, and by this arrangement of parts the rails act precisely as the brushes do in the ordinary construction of a motor.

As a matter of convenience and arrangement two motors are used in the form of car shown, one being arranged at each end.

There is no particular limitation to the shape or form of the car nor to the number of the motors used, a series of dummy wheels that act as supports for the car being provided at one end if need be and the commutators of a single motor arranged in any other part of the car serving as the driving wheels.

I claim as my invention—

In combination with a supporting track provided with a conducting strip, a car, an electric motor supported on the car and having
5 the ends of the armature shaft provided with commutator strips arranged to form driving wheels for the car with the terminals of the

coils connected up to commutator strips on diametrically opposite sides of the commutators, all substantially as described.

LAWRENCE WELLS CASE.

Witnesses:

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